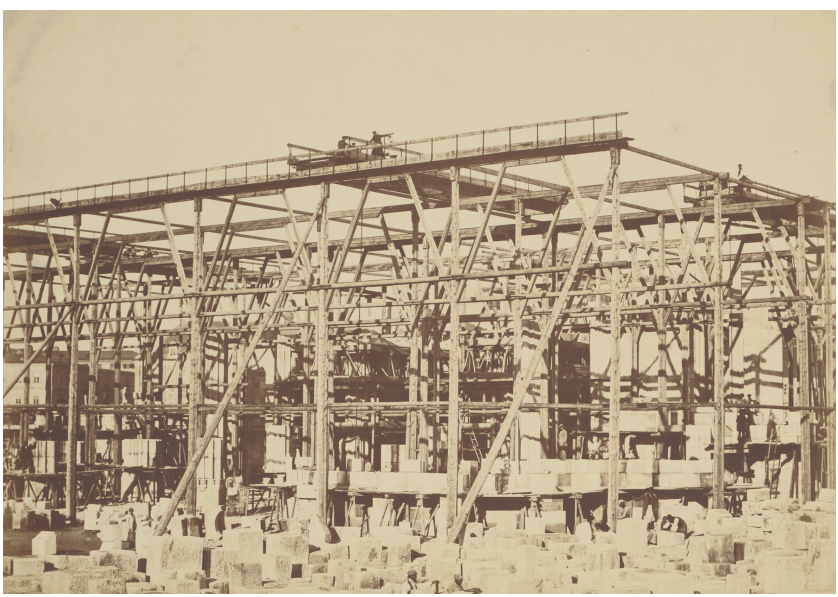

Imperial State Printing Office (K. k. Hof- und Staatsdruckerei), votive church (Votivkirche)
Vienna, 1858. This photograph is one of three images taken in 1858 to document the construction site.
Wien Museum, Vienna

midwives of architecture-scaffoldings and false works as agents in architectural photography

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Architectural photography has always concentrated on the building itself, even when looking at the construction sites. This contribution wants to put forward the role of the auxiliary structures of scaffoldings and false works, which have played a significant role within the production of images of architecture from the beginning of the new medium until after World War II, and regaining interest within the artistic world today. This article gives an overview of the past 180 years of photographic production concentrating on images from Vienna, Paris, London, Scotland, Switzerland and Rome, which all in their singular existence proof the desire and the wish of the photographer and furthermore designers and artists to emphasize on the presentation –more than on the becoming architecture– of the auxiliary structure, which I interpret as midwives[1] for and in special cases as prosthesis of architecture.

keywords Scaffolding, False work, Construction, Building process

prologue

From the very beginning, when humans started to build houses to live in and sacred monuments where they could worship they had to use auxiliary structures to erect their buildings. Within the cultural production of human kind, we find many examples of the depiction of these building processes. From ancient times onwards through the Gothic and Renaissance period images with construction work become more and more frequent and by the time after the Industrial Revolution, which fuelled a ubiquitous construction mania, these images become even more common. Evidently it was interesting to document and conceived worthy to conserve this knowledge for future generations. With the invention of photography, a new media became available and architecture as such was considered as a perfect agent, as it was an object standing outside in the bright sunlight with shadows making the structure easy readable and most of all being stabile, hence not moving. Therefor architecture and urbanscapes were, besides still lives and portraits, the first objects to be fixed on photographs. If a closer look is taken on the immense production of architectural photography in the early period, one can find an abundant quantity of images showing building processes. This article aims to bring a few of these images physically out of the archives and mentally out of oblivion to present these helping structures of architecture, namely scaffoldings and false works, in a new light.

scaffoldings and false works

Auxiliary structures to the building process perform in many different aspects, and with their functions they also appear on photographic images of buildings being erected. The first function is of course to create a new building. In order to reach each and every corner of a building scaffoldings have very complex structures, shapes and forms but at the same time these are executed sparingly in materialistic terms. They cover spectacularly the outside of buildings but are needed as well in the interior if the height is surpassing the reach of a worker's hand. If the construction site reaches extensive dimensions the scaffolding iterates an easy to repeat module of the human body. It is made for him as a gigantic super-tool to work on an architectural structure or technical infrastructure. The second scope of application is during a renovation or alteration process of existing buildings. The ubiquitous completion works of cathedrals within the 19th century –to name only this kind of works– have left some impressive plans which document the meticulously constructed and executed scaffolding for these works. Thirdly is the use in case of danger of collapsing. After earthquakes or with problems of foundations scaffoldings are needed to reinforce and to support an existing, a damaged or a ruinous structure. Be it subsequently demolished or renovated. In fourth place is the use of scaffoldings, which protect other structures, that is a scaffolding to shelter an important historical monument in the case of war or other situations not related to war. A fifth field of application is for short term use such as festive architecture or opening ceremonial structures.

Similar to these cases of scaffoldings are the structural constructions of false works. These are used mainly for vaulted structures such as domes and bridges, where the false work are loadbearing during the construction process. With their morphological shape they generate a negative mould of the final form of the intended structure. Other than scaffoldings they are not primarily constructed to aid the worker to get to every section of a building but are essentially needed for the construction of the building or the structure itself.

Scaffoldings and false works are needed as auxiliary structures, which are becoming useless for the building after the actual act of construction. Therefor planners and the building trade put extra attention on this issue making it an important economic factor. Economically two aspects are of interest: On the one hand it is to keep the costs as low as possible and on the other hand to allow the reuse of the material of the scaffolding as often

as possible. This led to the most economic designs and productions of scaffoldings making them to structures with an ultimate ratio of input and output.

another history of architectural photography

The inventor of the calotype, Henry Fox Talbot, was turning to easy to depict objects for his book *The Pencil of Nature*, which was produced between 1844 and 1846 and then becoming the first commercially distributed photo-book. Besides still lives and architectural images from Great Britain he took for his book a photograph in central London in early April 1844. It is a rather rude and amateurish view of Trafalgar Square taken most probably from a window in Cockspur Street[2] **(f1)**.

f1_The construction site of Trafalgar Square and the scaffolding of Nelson's Column
London, first week in April 1844, Henry Fox Talbot. Metropolitan Museum of Art, New York City, USA

In the front a fence with many advertisements can be made out, houses and the church St. Martin in the Fields make up the background. Besides the latter vertical structure, the base and the shaft of Nelson´s Column covered in the rest of a scaffolding is a second vertical structure but too tall and too close to the camera to be captured *in toto* on the image. It is not only the construction of the column which is going on, it is also the creation of Trafalgar Square, which was designed and executed at that time. Fox Talbot took in total five calotypes of Trafalgar Square, and although others have argued that with his way of photographing the

same site over a period of several years "he perhaps gets close to the modern concept of a news photographer by documenting current events of popular interest"[3] it is conceivable that other reasons stand behind the taking of these photographs. There might be another reason for photographing a partial view of the construction site of this famous brand of nowadays London tourism. On April 23rd 1844 Thomas Grissell, a member of the Institute of Civil Engineers, held a presentation at an institute´s conference on "The Scaffolding used in Erecting the Nelson Column, Trafalgar Square". In this talk he was referring to the technique and the new way how this wooden structure was created: "In adopting the principle of timber scaffolding for buildings, in preference to poles and ropes, Messrs. Grissell and Peto, the contractors, were influenced by considerations of saving both time and expense. They had long been impressed with the want of scientific principle, exhibited in the ordinary scaffolding, and were more readily induced to turn their attention to that now referred to, which they believe to be an essential improvement, and calculated to be of considerable advantage to contractors on large buildings"[4]. The interest given to this new method of creating a well-constructed and secure scaffolding for the workers made this auxiliary structure also worthy to be photographed and hence Fox Talbot documented its modern and avant-garde character –although for the modern spectator less evident and obvious.

Also in 1844, while Fox Talbot shot his images, Robert Adamson and David Octavius Hill undertook a small series if photographs depicting the construction of Sir Walter Scott´s monument in Edinburgh. They photographed the advancing status of the building and while in an earlier one they set the construction site before Carlton Hill looking east, they also banned on salt paper the advancing structure from the lower North Loch looking up the slope and the monument underpinning the verticality and the high rising qualities of the monument. While in the earlier image the main scaffolding for the structure is hidden behind the filigree stone construction, the later makes the scaffolding the main actor in the salt paper photograph. In the Scottish case the scaffolding was technically nothing more than an elevator *avant la lettre* making it easy to lift stone after stone for the spine to grow higher and higher. Nevertheless, attached to each other the monument and the wooden structure –evolving at the same time and speed– are proof to human kind´s desire to be closer to heaven, which in this case means to create an apotheosis for the Scottish national writer through a monument.

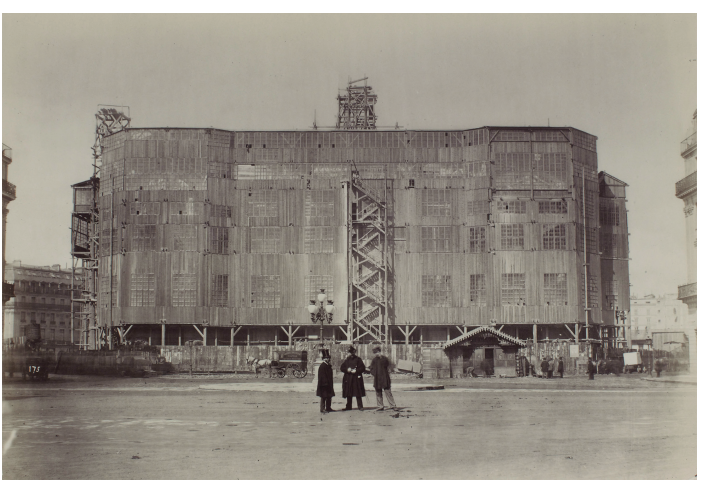
Following the failed assassination attempt on young Austrian Emperor Franz Joseph in 1853, his brother, Archduke Ferdinand Max, called for a memorial and a votive church (*Votivkirche*) to be built to thank for his brother's salvation. When the first walls rose the Imperial State Printing Office (*K. k. Hof- und Staatsdruckerei*) started a photographic campaign in 1857. Between 1857 and 1861 twelve –known– photographs were taken of the construction site for the neo-Gothic votive church. As it was not obstructed by adjacent buildings or trees the photographer was able to take pictures of the ever changing building including its scaffoldings from various angles and distances. All of the photographs were taken with the camera placed on an elevated post, to be able to see over the construction fence and in order to minimize falling lines. In the first year of the campaign the camera was positioned a) behind the presbytery, b) before the presbytery looking into the nave and c) in front of the southern outside walls of the nave. To position it opposite of the northern side was abandoned as the light conditions did not allow a satisfactory result. In the following years the positions only changed gradually but images were only taken of sections of the building, which were new in that year. For that matter, the photographer documented the growing nave with two images in 1858, the southern wall, the presbytery and the nave in 1859, the southern wall in 1860. In 1861 he was able to depict the rising of the double tower façade.

The dynamic of the construction process is manifested through the constantly growing masses of stones, but more than that, and this is brilliantly perceivable in the images through the Cartesian cage of the changing scaffolding. (figure on this contribution's title page) The photographer had chosen vantage points which never coincided with the direction of this Cartesian grid, but has on the contrary chosen another Cartesian system

for the position of the camera in order to heighten the dramaturgy of the scenography and to create favourable vantage points for composed perspective views. In all twelve images the actual building steps back, the main agent within the photographs are the beams, the poles as well as the technical apparatuses (rail crane) used; and even more than the workers posing for the photographer.

Just a few years later two photographers set out to take pictures of the construction site of the *Le Nouvel Opéra* (The New Opera house, today *Opéra Garnier*) in Paris, built between 1860 and 1875. After the urbanistic revolution initiated by Napoléon III and Georges-Eugène Haussmann of cutting streets through the city´s fabric connecting important monuments and buildings the emperor ordered a new opera with higher security standards after a failed attempt to assassinate him leaving the opera house *Salle de la rue Lepeletier*. After Charles Garnier had won the competition for the music temple works for the new opera house commenced within the old ring of boulevards in the north-western section of the old town. Garnier who was planning a monography about his architectural achievements wanted to have a photographed documentary to help him write a book on the opera house. Through the whole construction process the photographers Hyacinthe-César Delmaet and Louis-Émile Durandelle depicted the rising monumental building from street level, the construction site from windows of oppositely located new houses, and also the interior of the advancing building which would become the centre of Parisian bourgeois social life and representation. It has been stated that they only depicted the construction site, no image is known by the authors of the final building[5]. Out of the countless images they took during the two decades of the creation of the new opera house two seem to be worth putting under scrutiny for this study. The first image shows a frontal view of the hidden main façade. The image, which is not dated but given nr. 175 by the photographers, was taken at around noon on a sunny day in a year around 1865 **(f2)**.

The image, although taken from street level has no falling lines and is composed



f2_Covered scaffoldings on the façade of the Opera Garnier
Paris, undated (1860s), Hyacinthe-César Delmaet and Louis-Émile Durandelle, photo © Beaux-Arts de Paris, Dist. RMN-Grand Palais / Delmaet et Durandelle

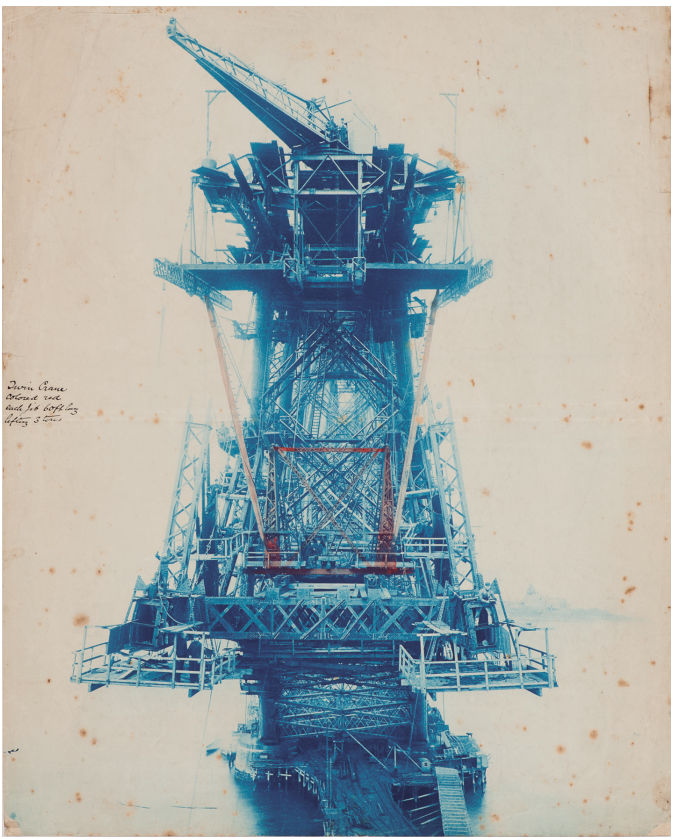
completely symmetrically. New buildings can be detected all around the becoming opera house, the street is paved and in the centre of the later *place de l'Opéra* has a small traffic refuge with an exuberant streetlight, a candelabra. While in the background people can be seen in the very centre of the image three centrally located, unknown men are taken for the picture as well. Although they are posing for the photographers the main agent of the image is the scaffolding behind them. In this case the actual scaffolding can be seen only in the ground floor, on the left side and on top of the building´s cupola. The main part of the auxiliary structure is entirely covered with boards and is penetrated through windows systematically distributed to shed light on the actual façade where the craftsmen are actively working and which is hardly perceivable through the window sections. The façade somehow reminding that of Hardwick Hall the whole structure has something modern and almost avant-gardist with its flat appearance and its expression bare of any ornament, looking more than a modern warehouse than a 19th century construction site, covering what will become the complete opposite in decorative aspects.

By showing only the protecting structure for the worker´s realm for creating a highly decorated expressive façade the second image does nothing less. While the first image of the hidden façade was an urban the second one with nr. 100 is an interior view. The photographers positioned the camera in a damp corner of the construction site and photographed towards a sunlit section, which is not known.

Deciphering the image one makes out three iron grid girders in the foreground leading towards a masonry wall (to the left in the sunlight) while the remaining space is completely filled with wooden beams and poles which serve as an immense mass of scaffoldings. In questioning the information given with this image one gets confused what to answer. At least for the modern spectator it is difficult to see the gain of this image, neither the location nor the greater context is clear. Juxtaposing these two images of the opera one gets two views of the new building give no clues about the building itself, neither on a macro nor on a micro level. The scaffoldings in the images have become completely autonomous. In looking at the photographers' approach in grasping a certain state of the construction process it has to be underlined that the unconventional way of depicting and staging the opera is reaching with its visual language far into 20th century photography.

A catastrophe happened in Scotland when the train bridge over the Firth of Tay collapsed due to gusty winds exactly at the time when a train was crossing it on December 28th 1879. After the bridge was rebuilt close to Edinburgh another bridge was constructed over the Firth of Forth. Having the disaster still in mind the engineers strove to fight the heavy wind loads and conceived a bridge structure with exaggerated security standards and which still exists today. From the period of its construction photographs survive from Evelyn George Carey, an engineer involved in the construction **(f3)**.

A cyanotype shows a pylon with a cantilever growing towards the photographer and presenting two dozens of posing workers. As a bridge –just like other building structures– is an engineered work it has to deal only with momentum, loads and security issues. Like a surrealist sculpture it rises from a white background and leaves the spectator uncertain what is considered the built structure, what the scaffolding and what the false work. Within the building process the borders between them are blurred and only after the auxiliary structures are completely dismantled one understands the final structure. Scaffoldings in constructions like these are used –other than with buildings– as false works, where they support fragile structures and are maintaining projecting beams which otherwise would collapse. Already from the beginning of photography false works were of interest of photographers, but it seems that between the 1880s and the 1940s –for differing reasons– these structures gained a growing interest for being documented and depicted.



f3_Queensferry Cantilever as seen from the south
Firth of Forth-Bridge, Scotland, 1889, Evelyn George Carey, Collection Centre Canadien d'Architecture/Canadien Centre for Architecture, Montréal

This can be found in different cases, less and better knowns. Besides the famous images of the erection of the Eiffel Tower for the World Exhibition in 1889 another building, which was erected for this centennial event was left on a photograph for later generations. In the year before the opening works were going on all over the Field of Mars in the French capital. After the design of the architect Charles Louis Ferdinand Dutert and the engineer Victor Contamin, the *Palais des Machines* was constructed and Michel Berthaud took images of its construction in 1888. It is the same case as at the Firth of Forth bridge, that structure and supporting false works are not fully visually separable.

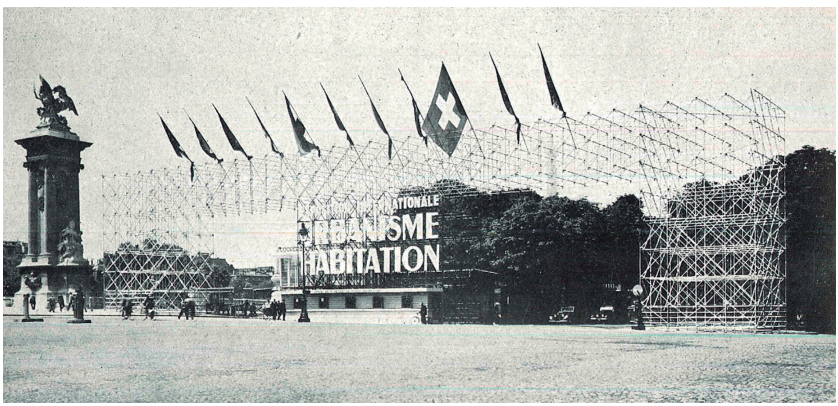
From the turn of the century onwards many impressive images of false works have survived to give an idea of engineering tasks of ever growing dimensions of height, length and width. Out of the many two images of these false works tell the story of technical innovation and advancement. An image from the Swiss Alps showing the completed false work for the Hundwilertobel-Bridge –the small tree on top indicates the finishing of the works, which means that the structure itself was considered as an autonomous structure– shows the wooden structure in an almost symmetrical perspective **(f4)**.

f4_False works for the construction of the Hundwilertobel-bridge spanning over the Urnaesch river
Switzerland, undated (around 1923), Unknown photographer. ETH Library, Zurich

The photograph taken between 1923 and 1925 has in the foreground the modern construction with foreseeing only one arch for the future bridge while in the background the older covered bridge needed three arches to cross the creek. The image presents solely the false work, the actual construction process for the new bridge had not yet commenced.

Two decades later, reconstructing the infrastructure after World War II, at Nogent-sur-Marne a bridge was reinstalled between 1946-1947. The span over the Marne River is presaged through the false work, which is, after several years of development, executed in the new technology of tubular metal beams.

As the tubular beams had such a success as a new construction technique the system was used for an exhibition architecture held at the *Grand Palais* in Paris in July and August of 1947. The entrance structure for the International Exhibition of Urbanism and Housing (*Exposition Internationale d'Urbanisme et d'Habitation*) consisted of three vertical and one horizontal long-stretched element to bear the title of the exhibition and to hold eleven flags of the countries involved **(f5)**.



f5_Entrance construction for the Exposition Internationale d'Urbanisme et d'Habitation in Paris in 1947
Collas (photographic credit). Pierre Vago, "L'exposition internationale de l'urbanisme et de l'habitation",. *L'architecture d'aujourd'hui*, 13-14 (1947), 120

The structure itself was light and seemed to be boiled down to the smallest amount of necessary material. One might see the links to later visions of architects and theorists like Yona Friedman and others. If the image of the scaffolding of the interior of the Paris opera led to the interpretation that its staging was an act of rendering it autonomous then this entrance structure is an obvious product, that the scaffolding started an existence sui generis.

The French case study showed that post war reconstruction fostered the technology of construction hence also the way structures developed for the building process. Returning to Vienna, to a city which had suffered damages after air raids in World War II scaffolding photography played a significant role within the political reconstruction propaganda. In the year the bridge of Nogent-sur-Marne was finished (1947) the city administration of Vienna distributed a publication under the title Vienna reconstructs! *(Wien baut auf!)*. Adjacent to a meticulously arranged list of reconstructed and secured homes and a statement that "In total 50,690 apartments were being repaired within the first two years of reconstruction"[6]; a photo collage is presented **(f6)**.

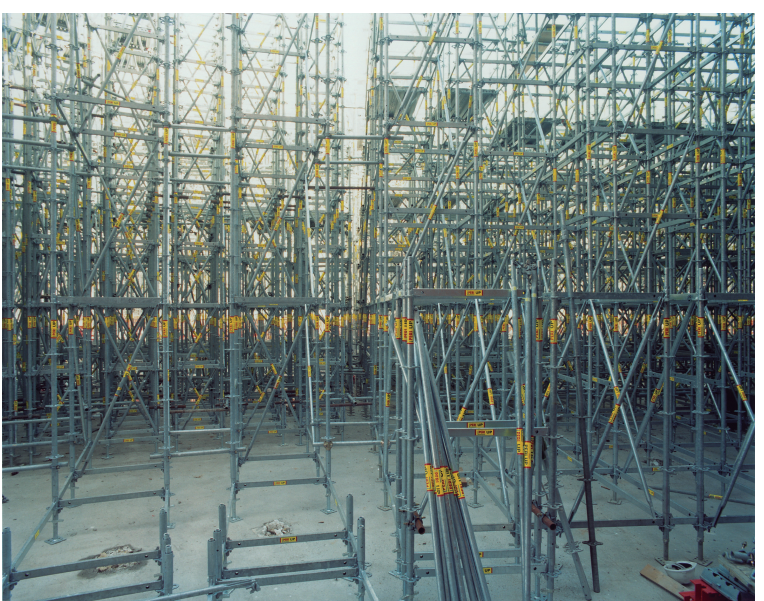
It shows debris, working men and different kinds of damaged tenement houses. All of the buildings have a scaffolding being the ubiquitous and legible agent of on-going reconstruction in the city and in the politically concerted collage. If the construction of a building implies that something new is taking place, then the scaffolding in this collage insists that the renovation process is changing the precarious situation of the desolate houses to a better state. In order to make the visual message more dramatic the author tried to get it through intensification of photographic material.

Within these post-war years the production of architectural photography with scaffoldings seems to have reached an end. It might be the changes in the building technology which made the construction process less attractive. With the introduction of steel framing in high rise buildings the scaffolding became obsolete as the structure of the building itself fulfilled the task of the scaffolding.

f6_Photo collage titled "Wien baut auf! (Vienna reconstructs!)"
Unknown photographer/graphic designer, Hans Riemer, *Wien baut auf*, (Wien: Magistrat Wien, 1947), 152

Just to contradict this situation, an art project was launched during the construction of the building of the *Museo Nazionale delle arti del XXI secolo (MAXXI)* in Rome after the design of the late Zaha Hadid. Under the title *Cantiere d'autore (The author's construction site)*, Margherita Guccione gathered eleven photographers for an initial conceptual work of art. Italian contemporary female and male photographers were invited to photograph the construction site of the MAXXI following a fixed timetable. After the foundation stone was laid in March 2003 the first photographer had to wait until November of the following year to have enough objects to photograph. Luciano Romano started with his work presenting the site in overall panoramic views but also close ups of technical equipment which does not allow to understand where the photographer has taken his spectators. In March 2005 Andrea Jemolo, in April 2005 Paola De Pietri, in September 2005 Antonio Biasiucci and in November 2005 Guido Guidi photographed a site starting to evolve showing scaffoldings, concrete structures and inconspicuous details. In 2006 Vittore Fossati –February, **(f7)**–, Raffaela Mariniello (March), Ramak Fazel (April), Giovanni Chiaramonte (beginning of June), Olivo Barbieri (end of June) and Moreno Gentili (July) were documenting the changing site of MAXXI.

After this first period a second project was launched. Finally, a total of 20 photographers captured their personal views onto the construction site of MAXXI leading to an exhibition in 2010/11. Turning a concept into an artwork has fostered different views of a construction site and pointing the view solely onto scaffoldings, which usually remain neglected making them once again the main agent in these images.



f7_Construction site of the MAXXI
Rome, 2006, Vittore Fossati, C-print, Courtesy Collezione Fotografia MAXXI Architettura

transition´s fascination

Looking at the newest architectural achievements which are being presented in architectural magazines the illustrations of the buildings are sometimes done at the very end of the construction process showing an immaculate and flawless product of architectonic concept and language. While artists are still interested in the way how becoming buildings, i. e. construction sites, are perceived architectural photographers seem not to be interested anymore. The case studies have shown that from the dawn of the photographic medium the construction process, perfectly identifiable through scaffoldings interested architects, photographers and most probably spectators and collectors alike because of the transitory state within a building´s biography. And this fascination lasted for about one century. With the change of building techniques and the absence of massive wooden scaffoldings photographers concentrated on different objects and subjects on construction sites.

The main question is why were scaffoldings and false works of such interest to photographers? Is it something in particular that these temporary structures are able to perform, to convey or to illustrate? The 19th century was especially in its second half an era of progress and construction, and that in all of Europe. Urban redevelopment and the ubiquitous introduction of infrastructure made construction sites and scaffoldings omnipresent. Considering the time span of these urban changes of roughly half a century until the beginning of World War I these "temporary" structures became part of cityscapes and hence *nolens volens* a photographic topos.

As it was shown the interest in technical innovations and achievements and its documentation was another driving force for photographers to take pictures of the changing and temporary moments of the construction. It was the dichotomy of the qualities of the two structures, which had a symbiotic existence during the time of construction. This dichotomy of the solid versus the ephemeral, the enduring versus the moveable and changeable reflects evidently in the materials used: lasting materials for the solid structure and low key materials for the scaffoldings and false works.

While many of these photograph feature a technological aspect one should not refrain from a lecture in aesthetic terms. The staging of the building and/or the scaffolding is in most of the cases composed and harmonious, the perspective is mostly dramatic and supports the character of the structure. The images enhance the sculptural qualities of the scaffolding being the temporary, the moveable and the transformable helping structure and its function it that of the midwife to the architecture. Staging a construction site puts forward the unfinished and sometimes even the ruinous character of a building, a thrive which goes back to 17th century mania for ruins making etchings and paintings with illusionary vistas and ideal views of Giovanni Battista Piranesi and Hubert Robert the visual precedents of some of the presented images. But mostly it is the fascination of the inherent *New*, as well as in the buildings as in the images of them. The act of creating, the constant state of changing and the spectacle of the making points in a teleological manner towards the coming of the *New*. And the *New* has always been and always will be of interest and a source of inspiration.

endnotes

1. I would like to thank Nicholas Stefan Drofiak to have inspired me for this term.

2. John Ward and Sara Stevenson, *Printed Light*, (Edinburgh: Scottish National Portrait Gallery, 1986), 107.

3. Ward and Stevenson, *Printed Light*, 107.

4. Grissell, *Nelson Column*, 3.

5. Bruno Foucart, in: *L'Opéra de Paris*, Paris: Centre National de la Photographie et le concours du Ministère de la Culture, 1986), s.p.

6. Riemer, *Wien baut auf*, 153.

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CV

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